What is Claimed is:

1. A layered structure for forming a thin layer capacitor comprising a metal foil and a dielectric material thereon having a thickness of between about 0.03 and about 2 microns.

2. The layered structure of Claim 1 wherein said dielectric material contains between about 1 wt% and about 100 wt% silica.

3. The layered structure of Claim 1 wherein said metal foil is selected from the group consisting of copper foil, nickel foil and aluminum foil.

4. A layered structure for acting as or forming at least one thin layer capacitor comprising in sequence a first metal layer, a dielectric material layer having a thickness of between about 0.03 and about 2 microns, and a second metal layer.

5. The layered structure according to Claim 4 wherein said first metal layer is a metal foil and said second metal layer is a metal layer deposited on said dielectric material layer.

6. The layered structure according to Claim 5 wherein said foil is between about 12 and about 110 microns thick and said second metal layer is between about 0.5 and about 3 microns thick.

7. The layered structure according to Claim 4 wherein said first metal layer is selected from the group consisting of copper, aluminum, and nickel and said second metal layer is selected from the group consisting of copper, nickel, and zinc.

8. The layered structure according to Claim 4 wherein said first metal layer is a coating between about 0.5 and about 3 microns thick on a polymeric support sheet.

9. The layered structure according to Claim 8 wherein said polymeric support sheet is polyamide.

10. The layered structure according to Claim 4 further comprising a barrier layer between about 0.01 and about 0.08 microns thick between said first metal layer and said dielectric material layer.

11. The layered structure according to Claim 10 wherein said barrier layer is formed of material selected from the group consisting of tungsten oxide, strontium oxide, and mixed tungsten/strontium oxides.

12. The layered structure according to Claim 4 further comprising an adhesion layer between about 0.0001 and about 0.05 microns thick between said dielectric material layer and said second metal layer

13. The layered structure according to Claim 12 wherein said adhesion layer is zinc oxide.

14. The layered structure according to Claim 12 wherein said adhesion layer is platinum/silica.

15. The layered structure according to Claim 12 wherein said adhesion layer is a functionally gradient material.

16. The layered structure according to Claim 4 wherein said dielectric material layer comprises between about 1 wt% and 100 % silica.

17. The layered structure according to Claim 4 wherein said dielectric material layer is selected from BST, $SrTiO_3$, Ta_2O_5, TiO_2, MnO_2, Y_2O_3, SnO_2, and PLZT.

18. The layered structure according to Claim 4 wherein said dielectric material layer is selected from barium titanium oxide, zirconium-doped barium titanium oxide, and tin-doped barium titanium oxide.

19. The layered structure in accordance with Claim 4 wherein said first metal layer is selected from the group consisting of nickel, tungsten, molybdenum, iron, niobium, titanium, nickel/chromium alloy, and iron/nickel/chromium alloy.

20. The layered structure in accordance with Claim 4 wherein said first metal layer has a surface roughness on the side of said dielectric material layer of at least about 1.1 cm^2/cm^2.

21. The layered structure in accordance with Claim 4 wherein said dielectric material layer is lossy having an electrical conductivity value of form about 10^{-1} to about 10^{-5} amperes per cm^2.

22. The layered structure in accordance with Claim 21 wherein said lossiness is achieved by thinness of said dielectric material layer.

23. The layered structure in accordance with Claim 21 wherein salid lossiness is achieved by chemical doping of said dielectric material layer.

24. The layered structure in accordance with Claim 4 wherein at least one of said first and second metal layers are patterned so as to provide discrete capacitor plates.

25. The layered structure in accordance with Claim 4 wherein said first and second metal layers are each patterned so as to provide discrete capacitor plates on opposed sides of said dielectric material layer.

26. A method of forming at least one capacitor comprising

providing a first metal foil layer,

depositing on said metal foil layer a dielectric material layer between about 0.03 and about 2 microns thick, and

depositing on said dielectric material a second metal layer.

27. The method according to Claim 26 wherein said dielectric material layer is deposited by combustion chemical vapor deposition.

28. The method according to Claim 26 wherein said second metal layer is deposited by combustion chemical vapor deposition or controlled atmosphere combustion chemical vapor deposition.

29. The method according to Claim 26 wherein said second metal layer is formed by depositing an electrically conductive seed layer by combustion chemical vapor deposition or controlled atmosphere combustion chemical vapor deposition and additional metal for said second metal layer is deposited by electroplating.

30. The method according to Claim 26 wherein prior to depositing said dielectric layer on said metal foil layer, a barrier layer between about 0.01 and about 0.08 microns thick is deposited on said foil to protect said metal foil layer from excessive temperature during deposition of said dielectric material layer and/or to prevent oxidation of said metal foil layer and/or to prevent chemical interaction between said metal foil layer and said dielectric material layer.

31. The method according to Claim 26 wherein prior to depositing said second metal layer, a layer of material is deposited between about 0.001 and about 0.05 microns thick, which layer of material promotes adhesion between said dielectric material layer and said second metal layer.

32. The method according to Claim 26 wherein second metal layer is patterned so as to provide a plurality of discrete capacitor plates.

33. The method according to Claim 32 wherein said patterned second material layer is laminated to dielectric material and said metal foil layer is patterned to form a plurality of discrete capacitor plates.

34. The method according to Claim 33 wherein patterned metal foil layer is laminated to dielectric material.

35. A method of providing at least one thin layer capacitor comprising

providing a polymeric support sheet,

depositing on said support sheet a first metal layer between about 0.05 and about 3 microns thick,

depositing on said first metal layer a dielectric material layer between about 0.03 and about 2 microns thick, and

deposition on said dielectric material layer a second metal layer between about 0.05 and about 3 microns thick.

36. The method according to Claim 35 wherein said second metal layer is subsequently patterned so as to form discrete capacitor plates.